

Baby Barbells

A Rattle Toy

Joe Larese



Celebrating the birth of a child with a gift is a universal tradition, and by making a fine wooden rattle, you will create a keepsake that parents will treasure and the baby will enjoy. This project exercises skills in endgrain hollowing, box making, and reverse jam chucking.

The idea for this rattle developed from an egg. The classic form, parted in the middle, hollowed and rejoined by a shouldered tenon has been a mainstay in turning. While learning to make these traditional objects, I

realized that by adding a handle to the egg shape, and depositing rice (or orzo) into the hollow, I could make a baby rattle. The original rattle was a huge success with friends and family, but I continued to look for additional forms to incorporate in my turnings. While visiting a friend, I admired the handle of an antique book press, thinking it was similar to the rattle's shape but closer in form to vintage barbells. The challenge was to work through a process to make the rattle from a single blank, assuring grain

match and tight-fitting joints. The methodical approach and repeat cuts would help improve my woodturning skills.

This rattle is made up of two spheres, one on each end of a handle. Each of the two spheres is a lidded box (lid one and lid two) made up of two hemispheres (four hemispheres total). The bottom of each box (spherical shape) is connected to the handle like a goblet would be. The entire rattle is made from one piece of wood. ▶



1 Using a fine-grained species of wood, turn a cylinder to a 1 $\frac{1}{8}$ " (48 mm) diameter that is 8" (200 mm) long. Turn a tenon on each end and mount the cylinder into a four-jaw chuck.



2 Part off a length of the cylinder, leaving a 1 $\frac{1}{2}$ " (38 mm) length mounted in the chuck.



3 Clean up the endgrain at the rim, slightly slanting the cut toward the center of the cylinder.



4 Use a spindle gouge to plunge-cut a $\frac{3}{4}$ " (20 mm) deep hole. If you are unfamiliar with making a hole in this way, use a drill bit to drill the hole.



5 Hollow the inside of the first hemisphere/lid, leaving a wall thickness of about $\frac{3}{16}$ " (5 mm). You are turning endgrain, so the cut is from the center to the outside.



6 Turn the outside of the first hemisphere/lid, matching the outside curve to the curve of the interior.



7 Part off the hemisphere and leave a small tenon on the end. Use an awl to mark a hole in the center of the tenon.

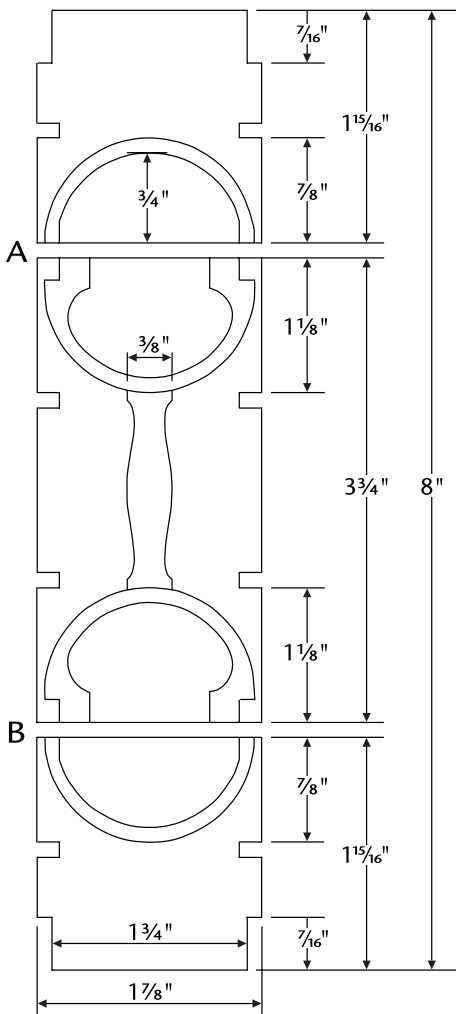


Figure 1. Dimensions and cut lines (A and B) for the baby rattle.

Illustration: Lloyd Johnson, woodturnerpro.com

Turn a cylinder

Select a straight-grained length of maple, cherry, or birch that will yield a cylinder that is $1\frac{7}{8}$ " (48 mm) diameter by 8" (200 mm) long. Avoid woods that can irritate skin, such as black walnut or cedar and most exotic woods. Mount the wood between lathe centers and turn to a $1\frac{7}{8}$ " (48 mm) diameter cylinder. Create a tenon on each end to fit into your four-jaw chuck (*Photo 1*). Ensure that the shoulder of each tenon is cleanly cut and is at 90° to the face of the cylinder. I use a $\frac{1}{2}$ " (13 mm) skew chisel to make a peeling cut. I follow the cut with a shearing cut with the long point to square the shoulder.

Part off at "A" (*Figure 1*), leaving $1\frac{1}{2}$ " (38 mm) extending from the chuck (*Photo 2*). Set aside the length just parted off. This cylinder, approximately $5\frac{7}{8}$ " (150 mm) long, will form the other portion of the rattle.

The wood left mounted in the chuck will form the first hemisphere (lid number one). Clean up the endgrain at the rim and make the cut 90° or slightly greater (*Photo 3*). Slightly undercutting the rim will

allow a tighter intersection of two hemispheres.

Hollow the first hemisphere

Use tape to mark a point $\frac{3}{4}$ " (19 mm) from the tip of a $\frac{3}{8}$ " (10 mm) gouge. Adjust the toolrest so the tip of the gouge is at the center of the wood. Present the gouge with the top of the flute at 45° and facing you. With the tool horizontal and in line with the bed of the lathe, push the gouge into the wood to the depth of the tape (*Photo 4*). (Alternatively, you can use a drill bit to drill a depth hole if you are not proficient with using a gouge in this manner.)

Make a mark on the outside of the cylinder at the $\frac{3}{4}$ " (19 mm) depth, plus $\frac{3}{16}$ " (5 mm) (*Figure 1*). That mark helps to establish the diameter and shape of the outside of the lid/hemisphere.

Hollow the inside of the hemisphere to the $\frac{3}{4}$ " (19 mm) depth and allow about $\frac{3}{16}$ " (5 mm) for the wall thickness all the way to the rim, aiming for a flowing curve. To hollow endgrain, move the tool from the center to the outside (*Photo 5*).

The last $\frac{3}{16}$ " (5 mm) of the sides must be straight to allow an easy fit with the other half of the sphere (*Figure 2*).

After the inside is hollowed, shape the outside of the hemisphere/lid. To establish the wall thickness, part to the waste side of the mark you previously

The Consumer Product Safety Commission has determined that because round shapes such as balls can completely block a child's airway, toys need to meet strict size requirements. Additionally, any ball-shaped toy less than $1\frac{3}{4}$ " (45 mm) in diameter is banned for sale with intended use by children younger than three years old. For this reason, the diameter of the ends of the barbell must be at least $1\frac{3}{4}$ " (45 mm).



8 Turn a shoulder that fits the first hemisphere.



9 Regularly check the fit.



10 Use a skew chisel to clean up the endgrain.



11 Fit the lid onto the cylinder, line up the grain, and bring up the tailstock.



12 Shape the outside end of the first hemisphere aiming for a wall thickness of about 1/8" (3 mm).



13 Slide the tailstock away and complete the hemisphere. Sand that end.

made on the outside. Start to turn the curve to match the interior, increasing the depth of the part in steps as you continue to match the interior curve (*Photo 6*).

Part off the hemisphere/lid and leave a small tenon on the end. Use an awl to mark the center of the tenon (*Photo 7*). This indentation will allow you to align the lid with the tailstock center in a later step.

Fit the first hemisphere/lid

Mount the portion of the cylinder you previously set aside into a four-jaw chuck. Using a small portion of a parting tool, gently turn a shoulder that fits the first hemisphere/lid you hollowed (*Photo 8*). Cut in small steps and keep the hollowed hemisphere/lid close at hand, regularly checking the fit (*Photo 9*). Caution: Without tailstock support the cylinder can easily be

knocked off center, so take gentle cuts with a sharp tool. A scraping cut exerts too much side pressure.

Once a tight fit is achieved, use the long point of the skew chisel to clean up the endgrain. Slightly undercut the shoulder to ensure a seamless intersection (*Photo 10*).

Fit the lid onto the cylinder and align the grain. Bring up the tailstock and insert the point of the ►



14 Begin hollowing the second hemisphere using a parting tool. Leave a wall thickness of about 1/4" (6 mm). The inside wall should be straight and 1/4" (6 mm) deep.



15 Finish hollowing the inside of the second hemisphere. Use a scraper to undercut and blend the curve.



16 Part off the cylinder at the point where you marked "B" from *Figure 1*. Hollow and form the section left in the chuck (the second lid), as you did for the first lid. Remove from the lathe.



17 With a short waste-wood cylinder in the four-jaw chuck, turn a tenon to fit the inside of the hollow you created on the end of the second section.



18 With the cylinder jam fitted onto the waste wood and the tailstock drawn up, turn a tenon on the end of the cylinder.



19 Fit the second hemisphere/lid onto the tenon.



20 Using the tailstock for support, finish-turn the end of the lid.



21 Use calipers to match the diameters of the two lids.

live center to the awl mark made earlier (*Photo 11*). Turn the diameter of the cylinder to just over $1\frac{3}{4}$ " (45 mm) diameter at the intersection and start to finish the end of the lid. (Any smaller than $1\frac{3}{4}$ " [45 mm] after sanding will no longer be child safe!) Aim for a finished wall thickness of about $\frac{1}{8}$ " (3 mm) to provide the best sound (*Photo 12*). After shaping is finished, slide the tailstock away to complete the end of first lid (*Photo 13*). Sand that area.

Hollow the second hemisphere

To hollow out the inside of the other half of the sphere (the second hemisphere), begin by making a 90° cut with a parting tool, leaving a $\frac{1}{4}$ " (6 mm) wall thickness for the tenon. The inside wall of the tenon should be straight and $\frac{1}{4}$ " (6 mm) deep (*Figure 2*, *Photo 14*). This section will later be jam fit to a waste block, so leave enough wood for support.

From the end of the straight wall, hollow $\frac{3}{4}$ " (19 mm) deep into the hemisphere. Use a scraper to undercut and blend the hollow (*Photo 15*, *Figure 1*). Measure the depth of the hollow and add a heavy $\frac{1}{8}$ " (3 mm). Transfer this combined measurement to the outside of the cylinder. Part a shallow groove to the waste of the mark to establish the intersection of the barbell's handle (*Figure 1*), but do not part all the way through—leave plenty of wood to form the handle of the rattle.

Turn and hollow the third hemisphere/second lid

With the lathe off, measure $1\frac{1}{2}$ " (38 mm) from the chuck jaws and make a mark. Use that mark to part off the cylinder at "B" in *Figure 1* (*Photo 16*). Using the wood that is left in the chuck, hollow out the third hemisphere/second lid. Use the directions previously given for hollowing hemi-

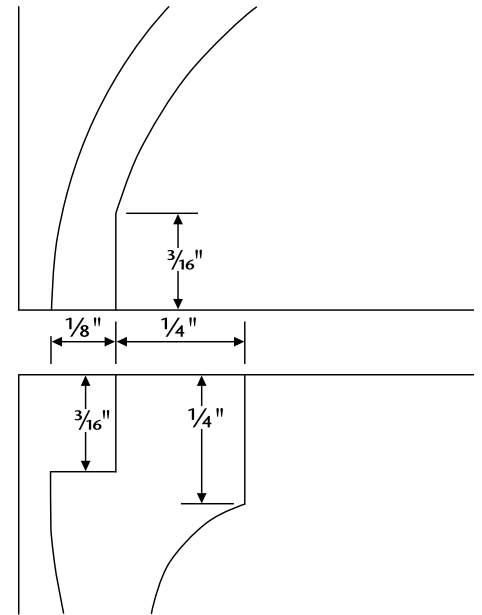


Figure 2. Detail and measurements for the lids.

Illustration: Lloyd Johnson, woodturnerpro.com

sphere/lid one. Remove from the chuck. This hemisphere will be the second lid.

Fit and finish the second lid

Insert a short waste-wood blank into the four-jaw chuck and turn a tenon to fit inside the hollow you created on the end of the second section (*Photo 17*). The fit should be tight. Mount the cylinder onto the tenon and draw up the tailstock. Use tape to reinforce the jam fit if needed.

Use the parting tool to form a tenon on the end of the cylinder (*Photo 18*). Onto this tenon will be fitted the second lid/hemisphere (*Photo 19*). I keep the live center in place for much of the stock removal. Use a very narrow, freshly honed parting tool and remove stock with only one-half of its width at a time.

After fitting the hemisphere/lid and with it in place, bring up the live center (*Photo 20*). Finish turn the end of the hemisphere/lid the way the first lid was finished. Use calipers to match the diameters of the two spheres (*Photo 21*). Set the lid aside.



22
Carefully hollow the fourth hemisphere.



23
Reattach the lid and finish turning its profile, sanding when finished.

Hollow the fourth hemisphere

Remove the tailstock and carefully hollow the fourth hemisphere (*Photo 22*). Reattach the lid and finish turning its profile. Sand it (*Photo 23*), remove it, and set it aside.

Turn the handle

Slide the tailstock forward and place the live center inside the hollow of the hemisphere just turned. Remove the tape to access the rest of the rattle. Use calipers and a parting tool to establish a $\frac{3}{8}$ " (10 mm) diameter at the intersection of the barbells and the handle (*Photo 24, Figure 1*). Carefully turn the middle section to form the handle. I use a skew chisel and a spindle gouge and work carefully to form a gently curved handle (*Photo 25*). Do not turn the handle too thin; otherwise it could break.

Sand all parts and finish with a child-safe product (*Photos 26, 27*).

Embellishments

I prefer a smooth joint with matched grain, but adding grooves or beads at the intersection of the barbell halves can add visual and tactile appeal. Before gluing the ends onto the rattle, try rice or orzo (a pasta product) in varying quantities inside the rattle and listen for the difference in sound. Once you decide on the contents, glue the lids on using either water-resistant PVA glue or a two-part epoxy.

After you give one of these rattles to a family member or friend, expect to make more of them! Sometimes when I am at the lathe working on yet another rattle, wishing I had not started this mini-production

Safety First

The size of the rattle prevents it from being a choking hazard. There are other safety precautions to take into consideration when making this toy.

1. The finish needs to be food safe. I use shellac.
2. The joints for the hemispheres should be tight and glued with fresh water-resistant glue or epoxy.
3. The contents of the rattle should be very small and food safe in case the rattle joint ever fails. I use rice or orzo.

All of the rattles I have made have been given to family and friends and I have the advantage of letting them know all the precautions that were taken in making the toy. Despite this, I tell parents that their baby should not play with the rattle unattended.

item, I think fondly of what a friend said. She was holding her baby while showing him the rattle, "Look what Uncle Joe made, just for you!" Priceless. ■

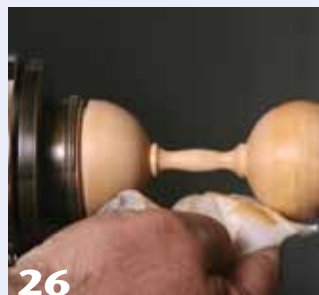
Joe Larese is a member of the Kaatskill Woodturners in New York and the Nutmeg Woodturners League in Connecticut and is a turning instructor at the Brookfield Craft Center. He is a photojournalist by profession and participated in the photography panel discussion at the 2010 symposium in Hartford.



24
Use calipers and a parting tool to establish a $\frac{3}{8}$ " (10 mm) diameter at the intersection of the barbells and the handle.



25
Carefully turn the middle section to form the handle.



26
Sand all parts and finish with a child-safe product.



27
Use the scrap wood as a jam-fit chuck to hold the lid for finishing.